



## Fire Marshal's Offices

### North Division

4755 SW Griffith Dr.  
Beaverton, OR 97076  
(503)526-2469  
Fax (503)526-2538

### South Division

7401 SW Washo Court  
Tualatin, OR 97062  
(503)612-7000  
Fax (503)612-7003

### East Division

320 Warner Milne Rd  
PO Box 351  
Oregon City, OR 97045  
(503)652-1365  
Fax (503)657-7913

## **FIRE FLOW and FIRE HYDRANT REQUIREMENTS**

The fire code requires that every building site have adequate water for fire fighting. The amount of water necessary to fight a fire for a particular building is called the required fire flow (GPM). It is based on the type of construction, building size, and fire hazard of the occupancy. Available fire flow is the amount of water available at the hydrants. Applicable fire flow is the amount of water that the fire department can deliver at a fire without depleting its ability to respond to other emergencies. The applicable fire flow also describes the level of acceptable risk of loss that the fire district is willing to take. The required fire flow cannot exceed either the available or applicable fire flow (3000GPM).

The following information is from the 1997 Edition of the Uniform Fire Code (UFC) Article 9 and Appendix III-A as amended by Tualatin Valley Fire and Rescue Fire Prevention Ordinance 99-01 Section X. This will help you determine numbers and placement of fire hydrants, and fire flow requirements for your project and document those requirements for the fire district and building department records. Oregon Structural Specialty Code 901.2 requires that the fire fighting water supplies be designed and installed in accordance with the UFC. Included is a work sheet to aid you in computing the required number of hydrants and required fire flow. Please feel free to ask the fire district for additional copies of the work sheet or this instruction book. Also please feel free to make copies of the work sheet as needed.

### A. **REQUIRED WATER SUPPLY FOR FIRE PROTECTION (UFC 903.3)**

An approved water supply capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into this jurisdiction. On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building protected is in excess of 250 feet from a water supply on a public street, as measured by an approved exterior route around the facility or building.

### B. **REQUIRED FIRE FLOW (Ordinance 99-01)**

No building shall be constructed or altered that would create a need for a fire flow over 3,000 gallons per minute (GPM) at 20 psi residual pressure or exceed the available fire flow at the building site. The fire flow requirements shall be determined by UFC Appendix III-A, National Fire Protection Association Standard 1231 (1993 edition), Standard on Water Supplies for Suburban and Rural Fire Fighting.

The fire flow may exceed 3,000 GPM if all reasonable methods of reducing the fire flow have been included, no unusual hazards to life and property exist, and if approved by the Chief. Existing buildings that require a fire flow over 3,000 GPM are not required to comply with this section. No additional increase in the required fire flow is allowed due to changes in occupancy, building alterations or repairs.

### C. **RURAL WATER SUPPLY (Ordinance 99-01)**

Fire fighting water supply that is outside the boundaries of a municipal type water supply shall meet NFPA 1231 and TVFR Standard Operating Guideline 7.2.7. This information is not covered in this packet and will be

developed on a case by case basis. Please contact the fire marshals office for help and guidance with these water supplies.

**D. MUNICIPAL OR PUBLIC WATER SUPPLY (Ordinance 99-01)**

All buildings that are constructed or moved onto areas having water districts or municipally developed water supply (public or private) must be provided with an approved water supply. The water supply must be capable of supplying the required fire flow.

**EXCEPTIONS**

1. For occupancies not listed in ORS 479.010(1)(I): This exception may apply if the loss of the structure would not incur substantial impact on the community financially. The commercial occupancy must have a smoke detection system installed throughout the complex that complies with UFC Standard 10-2. The system must be monitored by a remote central station and be approved by the Fire Chief.
2. Requirements may be modified if there are not more than one each Group R-3, Group U and agricultural occupancies on a single parcel of at least one acre, provided that in the opinion of the chief emergency operations and rescue would not be impaired and fire flow requirements do not exceed 1500 GPM.

**REQUIRED FIRE HYDRANTS**

**MEASURING DISTANCES.** All measurements for hydrants shall be made in an approved manner around the outside of the building and along an approved access road way. When measuring for hydrant distances, consideration shall be taken when dealing with retaining walls, fencing, swails, berms, creeks, rivers or similar obstructions. UFC Section 903.4

**LOCATING HYDRANTS.** Hydrants should be placed on the right hand side of the roads and intersections whenever possible, considering the most likely direction of response by a fire engine.

Hydrants shall not be further than 15 feet from an approved access road. UFC Section 903.4.2.4

Hydrants and fire department connections shall not be obstructed and shall have not less than three feet of clear space around them. UFC Section 1001.7

There shall be a hydrant within 70 feet of a fire department connection. The fire department connection and the fire hydrant should be on the same side of a fire access road. UFC Section 903.4.2.5

**SINGLE AND DUAL FAMILY DWELLINGS.** Fire hydrants shall be installed at intersections of subdivisions and smaller developments. If there is more than 500 feet from the most remote portion of the building under consideration and the fire hydrant located at the intersection additional hydrants shall be installed along the approved driving surface. Locations of the additional hydrants shall be approved by the chief. UFC Section 903.4.2.2

**COMMERCIAL BUILDINGS.** Fire hydrants shall be installed so that no part of the structure is more than 250 feet from a fire hydrant. If the building is provided with an approved automatic sprinkler system the distances may be increased to 500 feet if in the opinion of the chief adequate protection is provided. UFC Section 903.4.2.1

**MINIMUM NUMBER OF FIRE HYDRANTS – COMMERCIAL BUILDINGS.** The total fire flow prior to giving any credit for fire protection systems shall be divided by 1500. If the resulting number is X.5 or greater, then the next larger whole number shall be used. There shall be not less than 2 hydrants accessible to a building. UFC Section

Considerations for placing fire hydrants shall be as follows:

1. Existing hydrants in the area may be used to meet the required number of hydrants; however, hydrants that are over 500 feet away from the nearest point of the subject building shall not contribute to the required number of hydrants.
2. Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants.
3. Hydrants that are separated from the subject building by divided highway, freeway, or heavily traveled collector streets shall not contribute to the required number of hydrants.
4. Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the chief.
5. Private hydrants or public hydrants that are on adjacent private property shall not contribute to the required number of hydrants for the subject building.

Exception: The use of hydrants located on other private property may be considered if their locations and access are encumbered in a legal document (such as deed restriction) by the owners of the involved parcels of property. The encumbrance may be lifted only after approval of the chief on behalf of the fire department and any other governmental agencies that may require approval.

6. When evaluating the placement of hydrants at apartment or industrial complexes the first hydrant(s) to be placed shall be at the primary access and any secondary access to the site. After these hydrants have been placed other hydrants shall be sited to meet the above requirements for spacing and minimum number of hydrants.